

C L A I M S

1. A microfluidic device comprising an MS-analyte presentation unit for a EDI-MS apparatus, said unit comprising an essentially planar support plate which on one side has one, two or more ports (MS-ports) comprising an area (EDI area) for presenting the MS-analyte to a mass spectrometer, said EDI area comprising a layer I of conducting material, **characterized** in that layer (I) has a conductive connection and/or that there is a calibrator area in the proximity of the MS-port.
2. The microfluidic device of claim 1, **characterized** in that there are two or more EDI areas and in that layer (I) of each EDI area is part of a common continuous conducting layer.
3. The microfluidic device of claim 1, **characterized** in that layer (I) is covered by a non-conducting layer (layer II).
4. The microfluidic device of claim 1, **characterized** in that there are two or more EDI areas and in that layer (II) of each EDI area is part of a common continuous non-conducting layer.
5. The microfluidic device of claim 1, **characterized** in that layer (I) is exposed in the MS-port at the surface of the EDI area, or embedded in the EDI area below said surface, or exposed at the bottom of the device.
6. The microfluidic device of claim 1, **characterized** in that there are two or more microchannel structures, each of which comprising an EDI area and being covered by a lid which may or may not have an opening above an EDI area.
7. The microfluidic device of claim 6, **characterized** in that said lid is removable.

8. The microfluidic device of claim 6, **characterized** in that said lid comprises a common conducting layer including the connection for electricity an opening above each of the EDI areas.
- 5 9. The microfluidic device of claim 1, **characterized** in that the device is in form of a disc, which preferably is circular, and that said microchannel structures are oriented radially in the disc and arranged annularly around a spinning axis of the disc.
- 10 10. The microfluidic device of claim 9, **characterized** in that each of said microchannel structures comprises a sample inlet port at an inner position and the MS-port at an outer position.
11. The microfluidic device of claim 1, characterized in that EDI is LDI such as
15 MALDI.